

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method according to claim 34, of performing link quality estimation of a TDMA-based wireless communication link between a mobile station and a target base station, wherein the mobile station receives a signal burst on a channel frequency of the target base station, comprising the following steps, executed in the mobile station; further comprising:

measuring a link quality of the received signal burst, and simultaneously identifying the target base station in parallel with the measurement based on the same received signal burst, wherein the measuring and identifying are performed more or less in parallel by different functional units in the mobile station; and

qualifying the measurement as valid if the mobile station has succeeded to identify the target base station based on the received and measured signal burst, or

discarding the measurement if the mobile station has failed to identify the target base station based on the received and measured signal burst.

2. (Previously Presented) A method according to claim 1, wherein the mobile station is connected to a serving base station and the target base station is a neighbouring base station, further comprising the step of reporting the qualified measurement by the mobile station to the serving base station.

3. (Previously Presented) A method according to claim 2, wherein the mobile station is directed by the serving base station in a measurement order to select a

measuring and identifying scheme for performing the steps of measuring and identifying, wherein the scheme is pre-programmed in the mobile station.

4. (Currently Amended) A method according to claim ~~1~~34, wherein the received signal burst is measured with respect to at least one of: received signal strength (RSS), carrier-to-interference power ratio (C/I), carrier power, and bit error rate (BER).

5. (Cancelled) A method according to claim 1, wherein the received signal burst includes an identity of the target base station which is detected by the mobile station.

6. (Cancelled) A method according to claim 5, wherein the received signal burst includes a synchronisation channel burst from the target base station including the identity.

7. (Cancelled) A method according to claim 1, wherein the received signal burst includes a burst from the target base station including a training sequence, wherein the identifying step includes the substeps of:

estimating the training sequence by the mobile station, wherein the training sequence is related to an identity of the target base station in a way that is known by the mobile station, and

deriving the target base station identity from the estimated training sequence based on the known relation.

8. (Currently Amended) A method according to claim ~~7~~34, wherein a code of the training sequence is identical to the identity of the target base station.

9. (Currently Amended) A method according to claim ~~1~~34, wherein the identifying step includes attempting to detect the received signal burst using at least two different modulation forms.

10. (Currently Amended) A method according to claim ~~1~~34, wherein the received signal burst includes a dummy burst including an identity of the target base station.

11. (Currently Amended) A method according to claim ~~7~~34, wherein the burst from the target base station is a dummy burst including the training sequence being related to the identity of the target base station.

12. (Currently Amended) A method according to claim ~~1~~34, wherein channel estimation is conducted on the received signal burst with respect to the target base station for performing at least one of the measuring and identifying steps.

13. (Previously Presented) A method according to claim 12, wherein one or more channel estimates are derived from the received signal burst, wherein identifying step includes the substeps of:

determining the channel estimates for a set of pre-determined training sequences, calculating a selection metric, and

selecting the training sequence that yields the greatest selection metric.

14. (Cancelled) A method according to claim 1, wherein the target base station is unsynchronised with the mobile station, wherein the mobile station receives a burst of a synchronisation channel for obtaining timing information, wherein the identifying step is based on the obtained timing information.

15. (Currently Amended) A method according to claim ~~1~~34, wherein the received signal burst includes a complete burst period.

16. (Previously Presented) A method according to claim 12, wherein the received signal burst includes contributions from a plurality of unsynchronised target base stations transmitting on the same frequency channel, wherein the steps of measuring and identifying are performed with respect to one target base station at a time sequentially for at least two of the target base stations.

17. (Previously Presented) A method according to claim 12, wherein the received signal burst includes contributions from a plurality of synchronised target base stations transmitting on the same frequency channel, wherein the steps of measuring and identifying are performed with respect to the target base stations for at least two of the synchronised target base stations jointly in one operation.

18. (Currently Amended) A method according to claim 1, wherein the qualified measurement is used for at least one of: performing base station selection for serving the mobile station in idle or busy mode, estimating cell relations, and determining the position of the mobile station.

19. (Currently Amended) ~~A mobile station including means for receiving a signal burst on a channel frequency of a target base station for performing link quality estimation of a TDMA-based wireless communication link with the target base station, wherein the mobile station further includes~~ according to claim 37, further comprising:

~~means for measuring a link quality of the received signal burst and for simultaneously identifying the target base station in parallel with the measurement based on the same received signal burst, wherein the measuring and identifying are performed more or less in parallel by different functional units in the mobile station;~~

means for qualifying ~~the~~ a measurement as valid if the mobile station has succeeded to identify the target base station based on the received and measured signal burst, and

means for discarding the measurement if the mobile station has failed to identify the target base station based on the received and measured signal burst.

20. (Previously Presented) A mobile station according to claim 19, wherein the mobile station is connected to a serving base station and the target base station is a neighbouring base station, wherein the mobile station further includes means for reporting the qualified measurement by the mobile station to the serving base station.

21. (Previously Presented) A mobile station according to claim 20, wherein the mobile station further includes at least one pre-programmed measuring and identifying scheme, wherein the mobile station is directed by the serving base station in a measurement order to select a measuring and identifying scheme.

22. (Currently Amended) A mobile station according to claim ~~19~~37, wherein the measuring means measures the received signal burst with respect to at least one of: received signal strength (RSS), carrier-to-interference power ratio (C/I), carrier power and bit error rate (BER).

23. (Currently Amended) A mobile station according to claim ~~19~~37, wherein the identifying means detects an identity of the target base station included in the received signal burst.

24. (Cancelled) A mobile station according to claim 19, wherein the identifying means estimates a training sequence included in the received signal burst, wherein the training sequence is related to an identity of the target base station in a way that is known by the mobile station, and that the identifying means further derives the identity from the estimated training sequence based on the known relation.

25. (Currently Amended) A mobile station according to claim ~~19~~37, wherein the identifying means attempts to detect the received signal burst using at least two different modulation forms.

26. (Currently Amended) A mobile station according to claim 37, wherein the mobile station further includes means for conducting channel estimation on the received signal burst with respect to the target base station, which is used for measuring and identifying.

27. (Previously Presented) A mobile station according to claim 26, wherein one or more channel estimates are derived from the received signal burst, wherein the mobile station further includes:

means for determining the channel estimates for a set of pre-determined training sequences,

means for calculating a selection metric, and

means for selecting the training sequence that yields the greatest selection metric.

28. (Currently Amended) A mobile station according to claim 37, wherein the target base station is unsynchronised with the mobile station, wherein the mobile station further includes means for receiving a burst of a synchronisation channel for obtaining timing information, wherein the identifying means uses the obtained timing information.

29. (Previously Presented) A mobile station according to claim 26, wherein the received signal burst includes contributions from a plurality of unsynchronised target base stations transmitting on the same frequency channel, wherein the measuring and identifying means measures and identifies with respect to one target base station at a time sequentially for at least two of the target base stations.

30. (Previously Presented) A mobile station according to claim 26, wherein the received signal burst includes contributions from a plurality of synchronised target base stations transmitting on the same frequency channel, wherein the measuring and identifying means measures and identifies jointly with respect to the target base stations for at least two of the synchronised target base stations in one operation.

31. (Currently Amended) A mobile station according to claim ~~49~~37, wherein the mobile station further includes means for performing base station selection based on the measurement results.

32. (Currently Amended) A computer program product directly loadable into the internal memory of a computer in the mobile station, including software code means for performing the method according to claim ~~4~~34.

33. (Currently Amended) A computer program product stored on a computer usable medium, including readable program for causing a computer in the mobile station to perform the method according to claim ~~4~~34.

34. (New) A method of operating a mobile station, the method comprising:

- (1) receiving at least a portion of a signal burst over a TDMA-based wireless communications link;
- (2) measuring link quality of the signal burst;
- (3) estimating a training sequence based on the signal burst;
- (4) identifying a target base station from which the signal burst was received by using the training sequence.



35. (New) The method of claim 34, wherein the step of estimating the training sequence comprises using a maximum-likelihood algorithm or a minimum mean-square error algorithm.

36. (New) The method of claim 34, wherein step (3) and step (4) are performed essentially in parallel by different functional units in the mobile station.

37. (New) A mobile station arranged to receive at least a portion of a signal burst over a TDMA-based wireless communications link, the mobile station comprising:  
means for measuring link quality of the signal burst;  
means for estimating a training sequence based on the signal burst;  
means for identifying a target base station from which the signal burst was received by using the training sequence.

38. (New) The apparatus of claim 37, wherein the means for estimating and the means for identifying are different functional units which operate in parallel.